



The Raleigh Amateur Radio Society's **EXCITER**

GET INVOLVED

- RARS General Membership meeting: **Second Tuesday** of the month.
- The RARS net meets every night except Saturday @ 8 p.m. on 146.640.
- The RARS Technical & Trader's net: Saturdays @ 8:00 PM on 146.64.
- RARS meets for a monthly dinner on the **third Tuesday** of each month.
- On the **fourth Tuesday** of every month, in-person meeting at Ridge Road Baptist Church where there will be project tables, demos, snacks, and socializing.



PUBLIC SERVICE EVENTS

Interested in helping? Visit
<https://www.rars.org/public-service.php>

frequently for our ham public service schedule.

RARS General Meeting

Date: August 12, 2025

Topic: The NASA, Deep Space Network

Presenter: Tony Rice,
Solar System Ambassador

Where: Ridge Road Baptist Church

Time: In-Person and Zoom Meeting at
7:30 PM, [More info at RARS.org](https://www.rars.org)

RARS In Person Gathering

Date: August 26, 2025

Where: Ridge Road Baptist Church

Time: 7:00 PM

In-person Gathering at Ridge Road Baptist Church where there will be project tables, demos, snacks, and socializing.

RARS Officers

PRESIDENT

Fin Gold
NC4FG
nc4fgfin@gmail.com

VICE PRESIDENT

Chuck Till
K4RGN
k4rgn@outlook.com

SECRETARY

Julie Royster
KT4JR
919-782-1624
KT4JR@arrl.net

TREASURER

Greg Seamster
KE4PAX
919.859.0029
KE4PAX@arrl.net



The Raleigh Amateur Radio Society

The Raleigh Amateur Radio Society, Inc. (RARS) was founded in 1969 and continues to serve and support the amateur radio community in the greater Triangle area. In 1999, the society incorporated a new RARS and obtained 501(c)(3) non-profit tax status.

The objectives of the club are to promote worldwide friendship through amateur radio; to be of public service by providing radio communications in times of disaster, emergency, or civic needs; to educate members in radio technique, and to provide training classes to assist in obtaining amateur radio licenses.

Anyone interested in amateur radio is eligible to apply for membership. Regular dues for licensed amateurs are \$18 per year. (From July 1 through June 30.) Additional licensed immediate family members pay \$5 each per year. Dues for licensed full-time students and licensed seniors 60 and over are \$12 per year. Unlicensed individuals may become associate members for \$9 per year. Applications for membership are available from the treasurer or on the RARS web site.

<https://www.rars.org>

Exciter

The Exciter is the official newsletter of the Raleigh Amateur Radio Society. It appears each month as a PDF on the RARS website at www.rars.org. Members receive email notification when the latest version is available. Please provide your email address to the Treasurer.

The Exciter welcomes articles, advertisements, and other contributions. To submit a piece to the newsletter, please contact the Editor. The Editor reserves the right to edit any and all pieces. The submission deadline for each month's Exciter is the Saturday that is ten days before the general meeting. All submissions must be final. Drafts are not accepted.

The views expressed in the Exciter are those of the individual authors and do not necessarily reflect the views of the Editor or RARS.

Tom Lewis, N4TL, editor (editor@rars.org)

Exciter President's Message for August 2025

Beating the Heat

After the full month of July heat wave, we finally have some cooler temps. Many hams stayed in and worked on indoor projects this past month. I was cleaning up a vintage Drake TR-4C transceiver and planning for antenna updates. Get on our [Discord server](#) to let us know what you've been working on. #radio-chat and #diy-projects are good places to post about your activity.

Coming up

- **Technician License Class**

Our next Technician license class on September 6, 13, and 20 – at our new training location: the Red Cross chapter at 100 North Peartree Lane, Raleigh, NC. Details on the [RARS website](#).

- **State Fair Exhibit**

Calling all NC ham radio operators! The NC Ham Radio Exhibit at the NC State Fair on October 16-26 is now actively seeking volunteers to help demonstrate the value of ham radio to our communities. This exhibit in the past has been a huge success, logging more than 2,300 visitors last year!

Parking is free, and your admission will be taken care of. [Sign up](#), represent RARS, and meet colleagues from other clubs.

Radio on!

73,

Fin Gold, NC4FG

President

Raleigh Amateur Radio Society

July 8, 2025 RARS meeting

President Fin Gold NC4FG called the meeting to order at 7:30 pm. He reminded Zoom participants of a few notes about using Zoom. See the minutes for all the details during the meeting on [page 31](#).



RARS president Fin Gold, NC4FG and Professor Veronica Augustyn of NCSU



Everyone waiting for the meeting to start

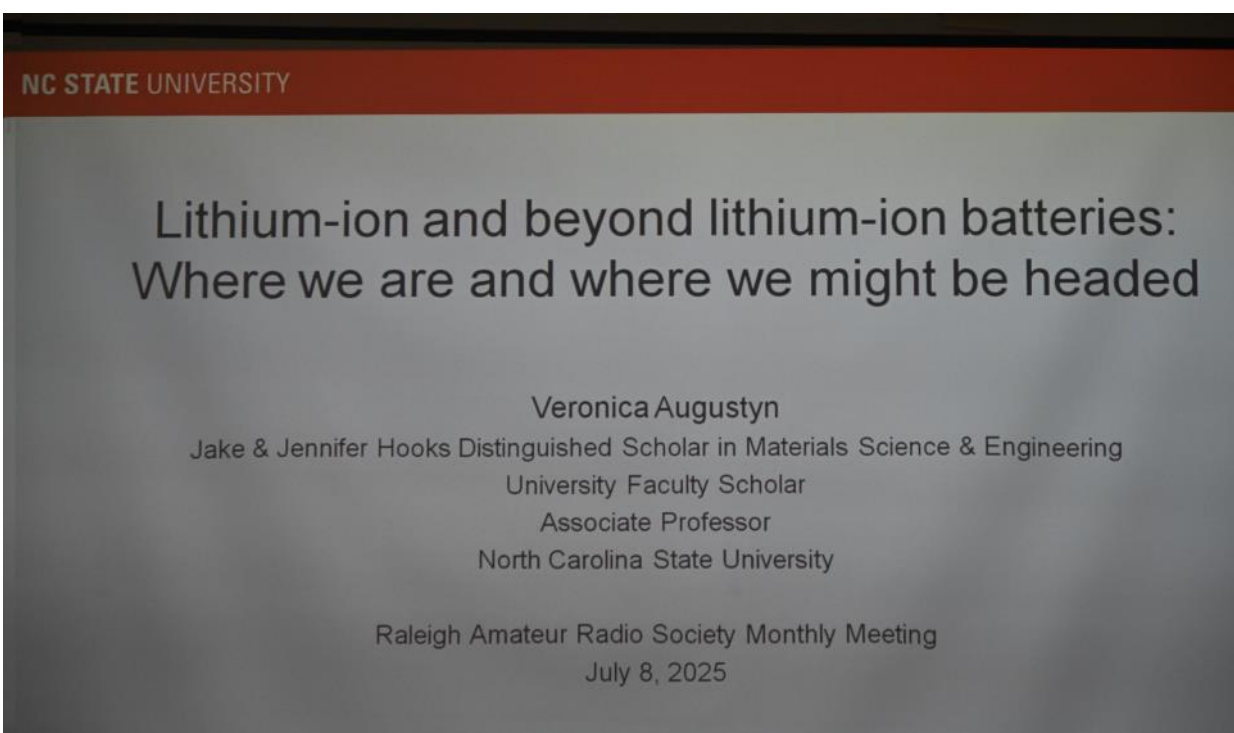
July 8, 2025 RARS meeting, continued



Door Prize winners. Left to right,

Dale Jones, WA4JCK; Devin Hedge, KN4FVH; Tom Karches, KQ4FKQ

After the door prize drawing, Chuck Till introduced the guest speaker, [Professor Veronica Augustyn](#), from North Carolina State University. Her presentation is titled, The Future of Lithium Batteries



July 8, 2025 RARS meeting, continued



The New Yorker, November 15, 1993

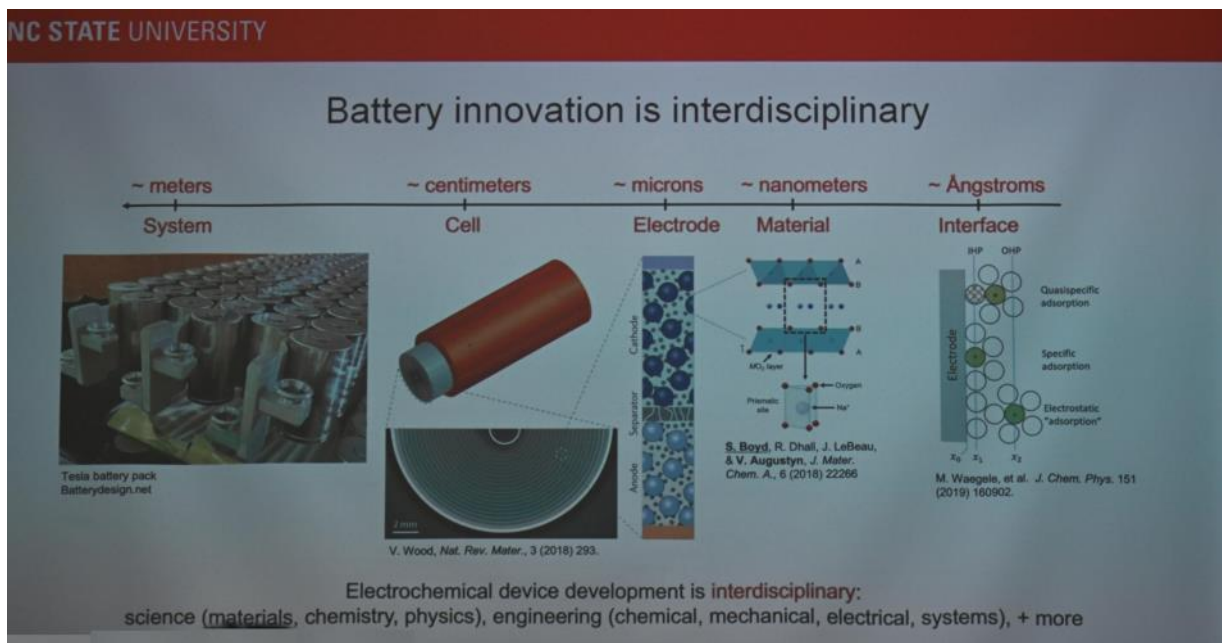
NC STATE UNIVERSITY

"The storage battery is one of those peculiar things which appeals to the imagination, and no more perfect thing could be desired by stock swindlers than that very selfsame thing. ... Just as soon as a man gets working on the secondary battery it brings out his latent capacity for lying."

- Thomas Edison, 1883

Photographs of some of the slides taken during the presentation.

July 8, 2025 RARS meeting, continued



NC STATE UNIVERSITY

Electrochemistry of Materials for Energy & Environmental Application




Core Experimental Expertise

- Materials synthesis
- Electrochemistry
- In situ/operando electrochemical characterization

Recent Research Topics

- Aqueous electrochemistry of metal oxides
- Electrochemical CO₂ adsorption
- Electrochemistry under confinement
- Electrochemical insertion reactions
- Solid-state superionic conductors
- Kinetics of porous electrochemical electrodes

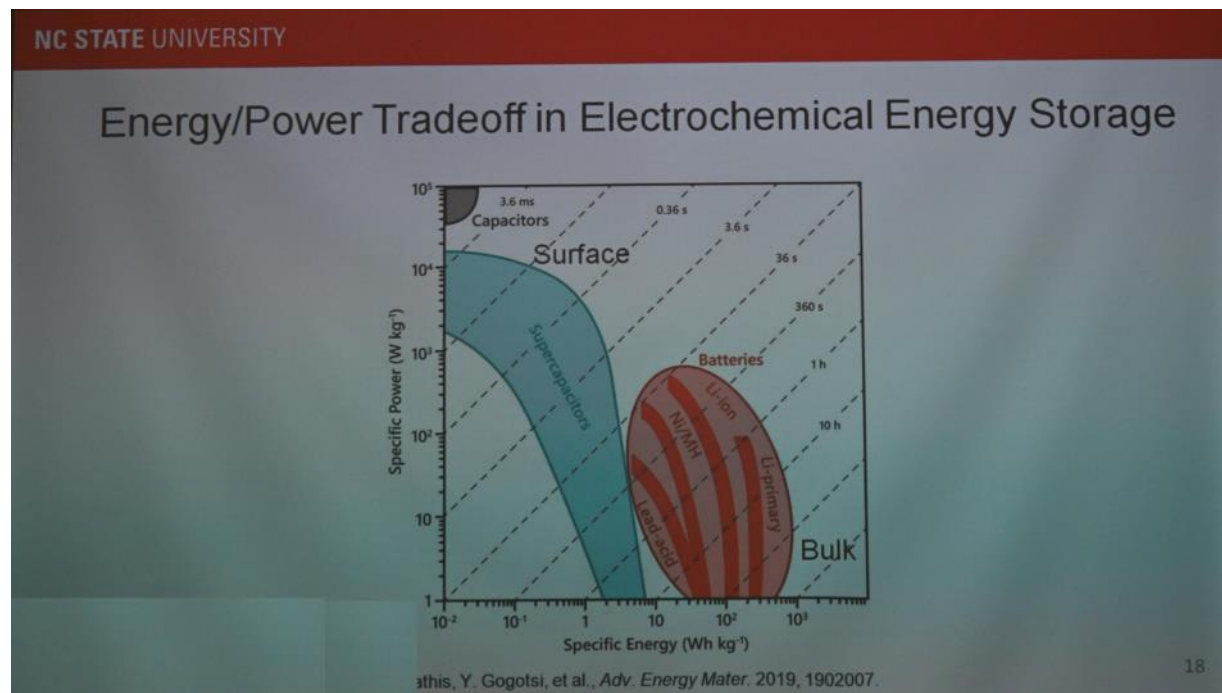
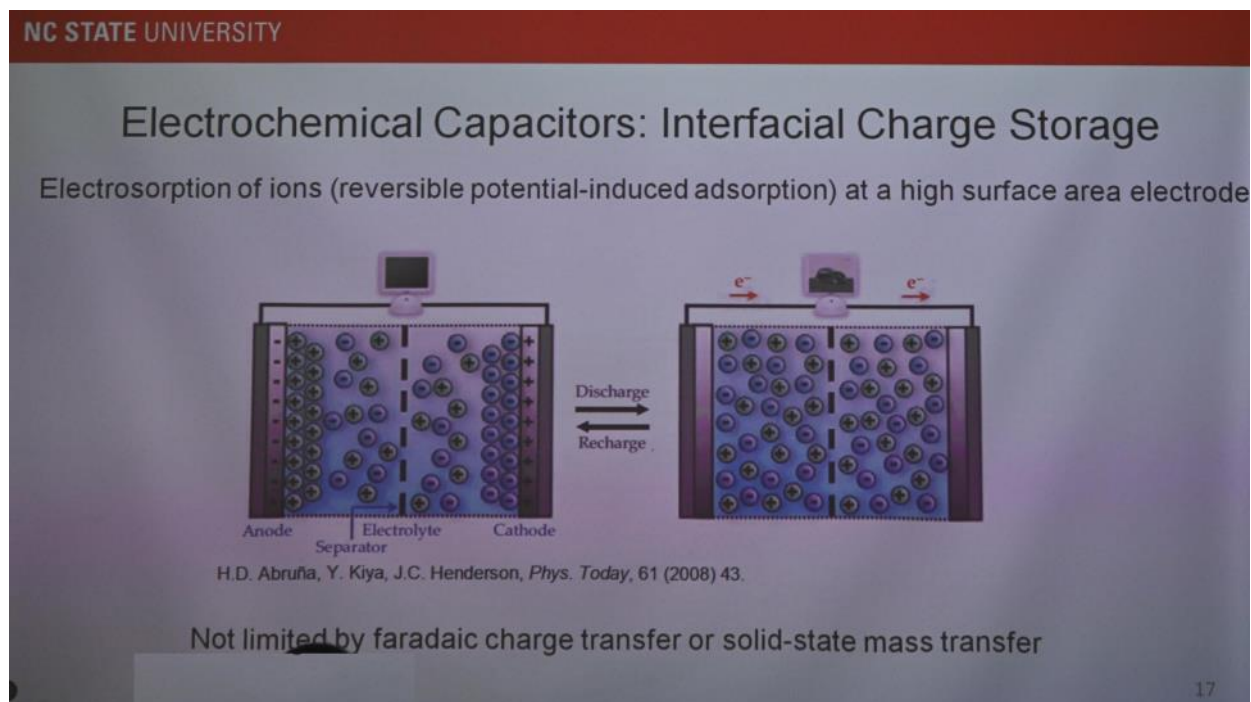
Materials Science at NC State University

- State-of-the-art materials characterization tools
- > 25 faculty in diverse research areas
- Located in Raleigh, routinely a top place to live in the U.S

mse.ncsu.edu/augustyn
mse.ncsu.edu/graduate

Photographs of some of the slides taken during the presentation.

July 8, 2025 RARS meeting, continued



Photographs of some of the slides taken during the presentation.

July 8, 2025 RARS meeting, continued

NC STATE UNIVERSITY

The Nobel Prize in Chemistry 2019

The Royal Swedish Academy of Sciences has decided to award the Nobel Prize in Chemistry 2019 to

John B. Goodenough
The University of Texas at Austin, USA

M. Stanley Whittingham
Binghamton University, State University of New York, USA

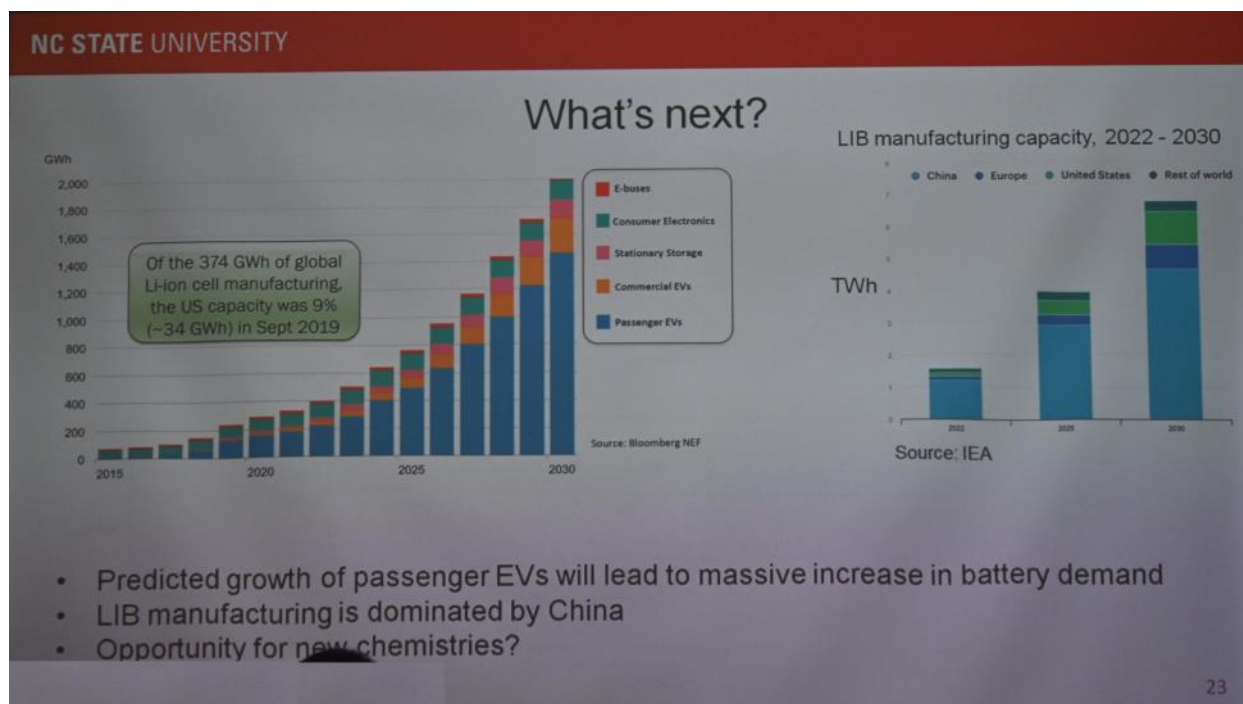
Akira Yoshino
Asahi Kasei Corporation, Tokyo, Japan
Meijo University, Nagoya, Japan

"for the development of lithium-ion batteries"

nobelprize.org

20

[The Nobel Prize in Chemistry 2019 - NobelPrize.org](https://www.nobelprize.org)



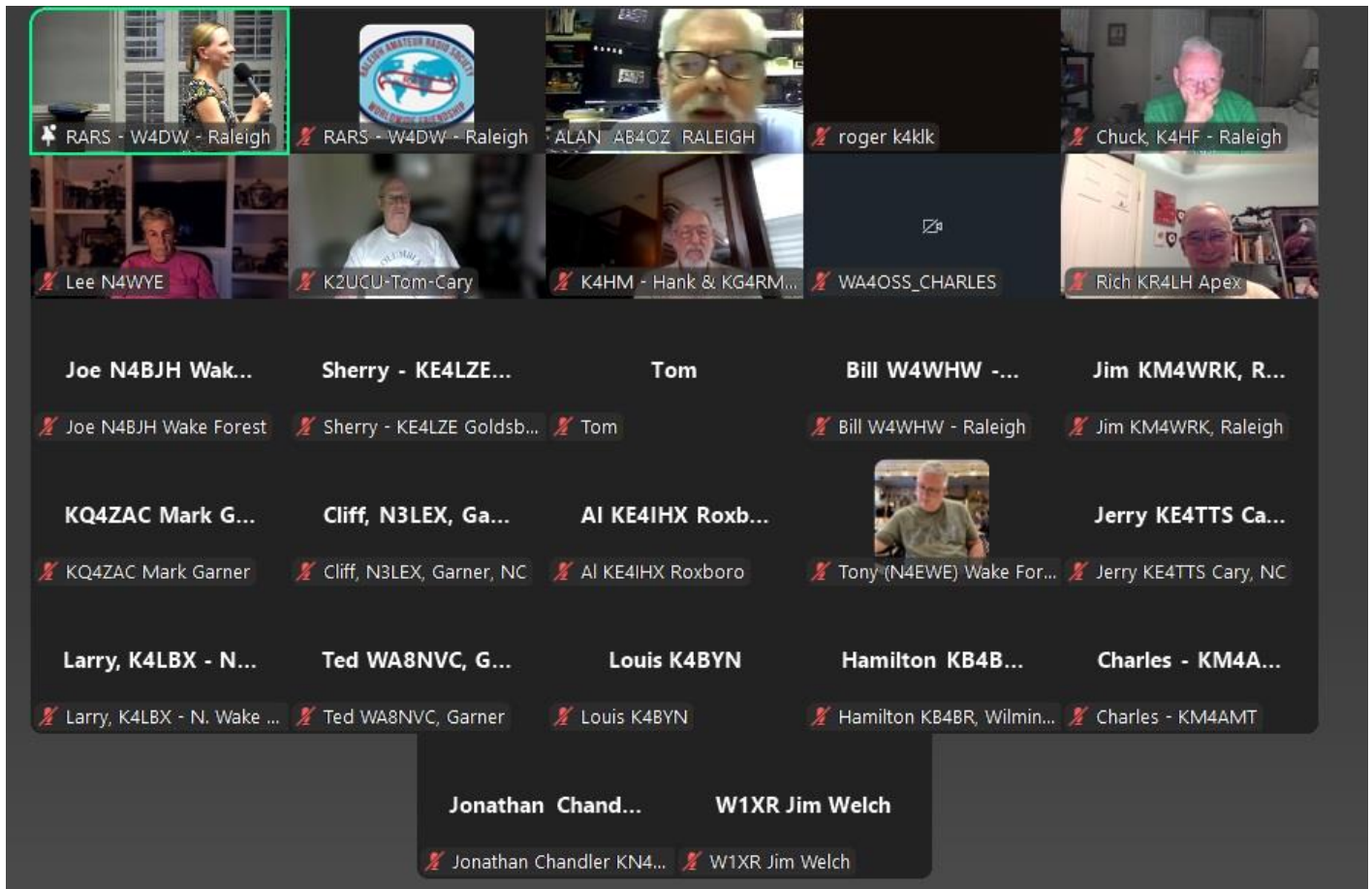
Photographs of some of the slides taken during the presentation.

July 8, 2025 RARS meeting, continued

Full Name	Call Sign	Full Name	Call Sign
Alex Kowalewski	KR4ESQ	Kim Johnson	KR4BUB
Barry Wheeler	K9IUT	Lawrence	KR4BGL
Bill Berzinskas	WW1H	Maria Droujkova	KQ4VVV
Bob Starkenburg	W4TTX	Michael Johnson	KZ4LY
Bruce Shermat	KI4PAC	Mike Joondeph	N1JDW
Callen Lindner	KQ4QWY	Nancy Torborg	KB2TNR
Carl Lindner	KM4GBE	Nick Baker	KR4BTY
Charles Swindell	WB4DCM	Park Anders	KR4DAG
Chuck North	WJ4A	Patrick Hannen	K3PMH
Chuck Till	K4RGN	Ralph Selmont	KQ4RZI
Daniel Berzinskas	KQ4GOB	Richard Kroeger	N1FUA
David Crawford	KF4VXJ	Richard Wehe	KF4HQS
Dennis Mason	WZ0Q	Robert Chew	K4YXM
Devin Hedge	KN4FVH	Roy Anderson	KQ4COJ
Fin Gold	NC4FG	Shirley Anderson	KQ4COB
Frank Scaraglina	KA2FWC	Steve Barry	N3FF
Greg Seamster	KE4PAX	Susan Jones	WA4AKB
Jim Barron	N4CVT	Tadd Torborg	KA2DEW
Joe Spratt	KR4DIN	Tim Thurber	WX4TIM
John Hollowell	K4JAH	Tom Karcher	KQ4FKA
John O'Connor	KN4JJV	Tom Lewis	N4TL
Jon Griffiths	W6PI	Tom Owens	KR4EPO
Josh Kurland	KR4BTW	Tony O'Connor	K1OC
Ken Latchum	AD4GX	Veronica Augustyn	NOCALL
Kevin Schilf	NOCALL	Wilbur Goss	WD4RDT

50 People attended in person

July 8, 2025 RARS meeting, continued



Screen capture showing 25 on Zoom

50 People attended in person plus 25 on Zoom

75 total

RARS MONTHLY SUPPER, IHOP RESTAURANT JULY 15, 2025

11 people



Names clockwise around the table, Ken Latchum, AD4GX; Susan Jones, WA4AKB;
Chuck Littlewood, K4HF; Bob Chew, K4YXM; Robert Chew; Dennis Mason, WZ0Q;
Chuck Till, K4RGN; Bob Starkenburg, W4TTX; Ralph Selmont, KQ4RZI; Dale Jones, WA4JCK;
Tom, N4TL taking the picture

July 2025

RARS Net Report

- 31 2m nets: 415 checkins, 864 minutes duration.
- 4 6m nets: 37 checkins, 69 minutes duration.
- 1 10m net: 4 checkins, 20 minutes duration.

Julie Royster, KT4JR, RARS net manager

Monthly In-Person RARS Gathering, July 22, 2025

Ridge Road Baptist Church, at [2011 Ridge Road, Raleigh](#)

The meeting starts at 7:00 pm in the Fellowship Hall, but we start setting up at 6:00 pm, and you are welcome to bring your own ham radio equipment and projects to demonstrate, show off, or just work on with other like-minded hams -- we have plenty of tables. You might also find sources of coax, connectors, zip cord, Powerpoles®, and whatnot.



Tadd Torborg, K2DEW, checking out an antenna



Miscellaneous pictures taken at the gathering copied from discord

Monthly In-Person RARS Gathering, July 22, continued

GOTA Station Sparks POTA Passion at RARS Gathering!

This month's Get On The Air (GOTA) station drew in Paul, KO4PZA and Chuck, WJ4A. The duo zeroed in on 40m and made several solid Parks on the Air contacts.

Midway through, Doug, N3LTV had a lightbulb moment with his ICOM 7300—finally figuring out the elusive attenuation pushbutton. Credit to Fin, NC4FG, our club president, who tested his rig from across the room and sparked the lesson!

Shoutout to Craig, KY4WM for wrangling the tables and chairs, and to D.C., WP4TGK for helping disconnect and wrap the antenna at closing time.

Want in on the action? Come out to the August meeting—jump on the air or help newly upgraded hams from our VE session take their first swings at a QSO!

Doug N3LTV



Paul Dugdell, KO4PZA and Chuck North, WJ4A.

Monthly In-Person RARS Gathering, July 22, continued



Miscellaneous picture taken at the gathering copied from RARS Discord

Full Name	Call Sign	Full Name	Call Sign
Austin Hyder	K4HYD	Ken Latchum	AD4GX
Barry Wheeler	K9IUT	Michael Johnson	KZ4LY
Billy Janke	KE4VNC	Nancy Torborg	KB2TNR
Brantley West	K4CBW	Patrick Hannon	K3PMH
Chuck North	WJ4A	Paul Dugdell	KO4PZA
Craig McCrory	KY4WM	Ralph Selmont	KQ4RZI
Dale Jones	WA4JCK	Richard Kroeger	N1FUA
Dennis Mason	WZ0Q	Rob Bowser	KO4HUI
Dennis McBride	KR4DZA	Stephen Haffly	NY4NC
Denny Oestreich	KO4IBL	Steve Barry	N3FF
Doug Wall	N3LTV	Susan Langley-Jones	WA4AKB
Fin Gold	NC4FG	Tadd Torborg	KA2DEW
Gilberto Diaz-Castro (DC)	WP4TGK	Tom Lewis	N4TL
John Bowser	NOCALL	Tony O'Connor	K1OC
Jonathan Osbrink	KB8QNE	Will Jabber	WY5L
Julie Royster	KT4JTR		

31 People attended the July Gathering

Seventy Years of Amateur Radio

RARS member Dave Langley, W4YDY, has been in Amateur Radio for 70 years. He is a charter member of RARS and was the original editor of RARS News, now called the Exciter. His birthday was July 29 and he is 90. Dave received many birthday cards this year. His daughter Susan Langley-Jones, WA4AKB, attended a number of ham radio meetings and events before his birthday and gave out birthday cards to anyone who wanted one. She suggested they write Dave a note in the card. She started mailing them July 21st. After a few days Dave figured out why he was getting so many cards.

Dave received a division-level recognition from Director Jim Boehner (N2ZZ) and Vice-Director Bill Morine (N2COP) at Field Day.

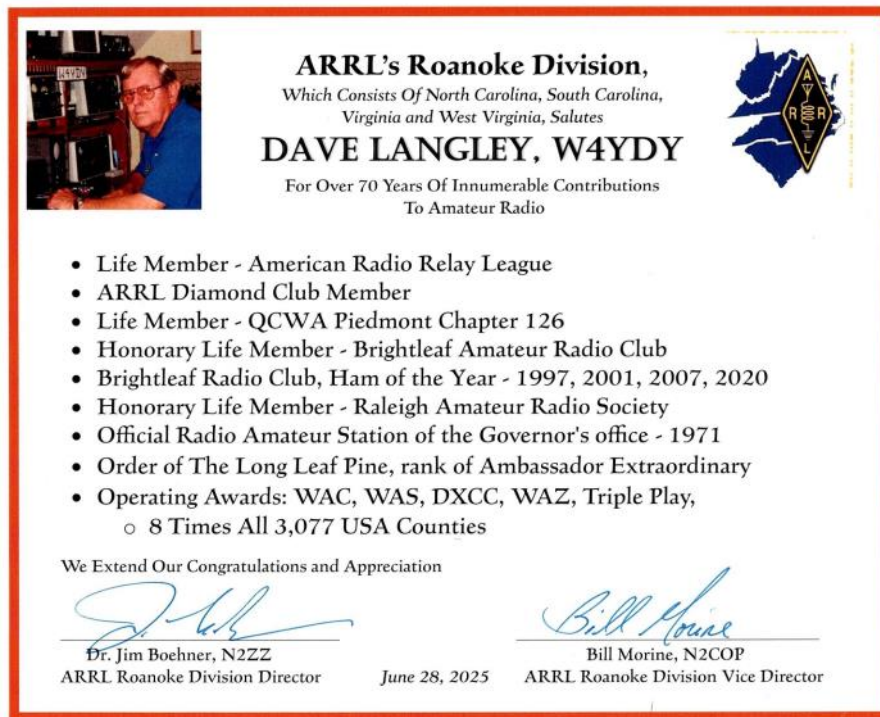
The next paragraph and picture is copied from the Brightleaf Amateur Radio Club [website](#) article about Field Day 2025 by Beth KN4FZB.

One of the highlights was a visit from two of our ARRL officials to present a special award. Bill Morine, N2COP, our Vice Director of the Roanoke Division, and Jim Boehner N2ZZ, Director of the Roanoke Division, who came to bring a certificate recognizing the many awards that Dave Langley, W4YDY, has received. Dave has had over 70 years of experience in the radio hobby and continues to be very active. Some of the accomplishments include, WAC, WAS, and DXCC, AND he has received the Order of the Long Leaf Pine, which is not even a ham radio award, but the highest civilian award in the state of North Carolina. You can look at the photos of the award to see the rest, or check out YDY's QRZ page for an even more in-depth look. Congratulations Dave.



Jim Boehner, N2ZZ, Director of the Roanoke Division; Dave Langley, W4YDY and Bill Morine, N2COP, our Vice Director of the Roanoke Division,

Seventy Years of Amateur Radio



The picture and text below was copied from the Brightleaf Amateur Radio Club website.

<https://w4amc.com/2022/09/30/seventy-years-of-amateur-radio/>

Seventy years ago on October 7, 1952, the FCC assigned a new call sign to a 17 year old. But it really started before then back about 1948 when he was 13. He was into model airplanes and Lionel electric trains. He got one train for Christmas and later bought another from a friend for \$20. He sold both to another friend for \$20 about 10 years later. In good condition, they are probably worth hundreds or more now.

Here is another website article about Dave written by his daughter Susan Langley-Jones, WA4AKB.

<https://w4amc.com/2022/06/18/w4ydy-platinum-jubilee/>



Dave Langley, W4YDY

Cary Swapfest FCC testing.

The July Swapfest delivered more than hot solder and good conversation—it gave four aspiring hams the chance to take the FCC tests. With five dedicated Volunteer Examiners on deck, two folks earned their General tickets, and one passed both the Technician and General. Hats off to David Schnieder, who made the double jump with confidence! We're proud to see VE sessions not just run smoothly. Thanks to everyone who helped make it happen. If you'd like to help, contact Richard Hall KR4LH. -Doug

Doug N3LTV



September RARS Ham Radio Technician Training Classes

"The next RARS Ham Radio Technician Training Classes will be on September 6, 13, and 20, 2025.

These classes will help prepare students to take the test for their first FCC Technician Radio License.

The classes will be held at the Raleigh Red Cross facility at 100 N. Peartree Ln, Raleigh, NC.

The classes will be held from 8:30 AM to 12:30 PM on each of the three Saturdays.

These classes will be led by six experienced RARS HAMS.

The classes will cover material needed to pass the exam for an entry-level amateur license.

Classes will be based on the "*ARRL Ham Radio License Manual, 5th Edition*" available from [Amazon.com](https://www.amazon.com) or [ARRL.Org](https://www.arrl.org). [link](#)

To reserve a seat in these classes, contact:

Denny Oestreich at Email: OestreichD@AOL.com or Telephone 919-846-8163"

Regards,

73 Denny , KO4IBL

<https://www.rars.org>

RARS Member Birthdays

Allen	KQ4QZA	8/1
Darrel	KD4CMA	8/2
Joe	KR4AFI	8/3
Lem	KI4YXS	8/4
Clement	KD4BMA	8/8
Greg	KQ4QXA	8/8
Eric	NR4O	8/10
Andy	AA9P	8/10
Manny	KB4NC	8/14
Dennis Lofton		8/15
Denny	KO4IBL	8/17
Bernard	W4BRB	8/17
Mike	KM4BJV	8/18
Dave	W4EIP	8/18
John	WA4JC	8/18
Bonnie	KK4OAK	8/19
Chuck	W3WZN	8/19
Al	KE4IHX	8/20
Mike	KN4DRN	8/21
Steve	N4BTS	8/22
Jim	W8MGZ	8/22
Barry	KD4WTI	8/22
Steve	KJ4BX	8/23
Hal	K4NKR	8/24
Craig	KY4WM	8/24
Ed	KK4BMB	8/24
John	K4EB	8/25
Kevin	KR4CWT	8/26
Jeremy	K2HJX	8/26
Bill	WW1H	8/27
David	KN4QT	8/29
Mike	KK4ETS	8/30
JB	KJ4ACB	8/30

RARS New Members

Jon Griffiths	W6PI
Joseph Spratt	KR4DIN
Alexander Kowalewski	KR4ESQ
Raymond Lilley	
John Rockwell	KO4RUD
Dennis McBride	KR4DZA
John OConnor	KN4JJV

RF Basics Technology Guide.

Charles Strickland, WA40SS sent this to the Exciter. it is a good RF Basics Technology Guide from Rigol. There are eight chapters.

1. Introduction
2. The electromagnetic Spectrum
3. Frequency Measurement Instrumentation
4. Spectrum Monitoring with Real-time analysis
5. Common Component Tests
6. Common Transmitter Tests
7. Common Receiver Tests
8. Electromagnetic Interference (EMI)

Click This link for the guide.

<https://beyondmeasure.rigoltech.com/acton/attachment/1579/f-06d7/1/-/-/-/RFBasics.pdf?sid=TV2:24ufIE4ii>

Get Involved with Public Service Events – It's Great Training!

Public Service Events are a fun, meaningful way to sharpen your on-air skills, give back to the community, and have fun with ham radio. Whether mobile or stationary, you'll practice making clear and concise reports to net control just like you would in a real emergency. Information passed to net control typically includes participant location, requests for assistance, adverse or hazardous weather conditions, and other event-related details. Participating in these events also allows you to practice using your equipment in real-world scenarios.

Thinking about net control? It's a great challenge that builds confidence. You'll need to track multiple stations, take notes, and give clear directions. I recommend experiencing a few events before stepping into that role.

At the **June 15 Cup N Cone ride in Cary**, benefitting the **Multiple Sclerosis Society**, three new volunteers, all from the same family, pitched in to help. Michael Johnson (KZ4LY), his wife Kim (KR4BUB, now KZ4UN after upgrading to Amateur Extra), and their son, Elliot (KR4BUA), helped make the event a great success. Kim, who had never even been on the air before, shadowed veteran volunteer Kenn Kubacki (NE4Y) at net control before she took the mic to close out the day. She did a fantastic job and has already signed up for more events.

A couple of weeks later and using her new Extra class license, Kim (KZ4UN) was net control at the [2025 FireCraker Ride](#) benefitting the National Multiple Sclerosis Society. Kim (KZ4UN) was net control



Kim, KZ4UN
net control

We'd love to see more hams join us at future events. You'll gain real-world experience and have a great time supporting a worthy cause.

[Join us at one of our future events!](#)

Doug N3LTV (I'll be at the [Five-O Memorial Bike Ride](#))

RARS Classifieds

Copied from <https://www.rars.org/classifieds.php>

The items below were listed within the last 30 days on the RARS website.
Check the RARS Classified List on the RARS website regularly for new items.

Hi-Gain T2X Tail twister Rotor & Controller

Posted June 26th, 2025 by: AD4GX

Contact: kalatchum@att.net

I have a used but (Refurbished) Tail twister Rotor plus a Controller for sale! This Rotor has been completely Refurbished by a qualified technician and it is ready to use! I'm only asking \$600 cash for this Rotor & controller! This Tail twister Rotor list for over \$1000 new! If interested please contact Ken (AD4GX) AT 434-251-1207 OR kalatchum@att.net!

Yaesu VX-5R 50/144/430 MHz HT

Posted August 3rd, 2025 by: [KC1TWR](#)

Contact: TimKC1TWR@gmail.com

Yaesu VX-5R 50/144/430 MHz HT in original box. Only thing missing is the belt clip. It does include the 50MHz antenna extender and a large print Operating Manual.

Also; the Yaesu ADMS-1E Programming software on 3.5" diskette and cable.

\$100

Tim KC1TWR

TimKC1TWR@gmail.com

Carrboro, NC

FS: Kenwood TS-520S

Posted August 2nd, 2025 by: [W4BOH](#)

Contact: infomet@embarqmail.com

YES, another example of the classic hybrid transceiver!

Running when parked, several years ago, so likely good, but present condition unknown.

Clearance price, \$125.

In Hillsborough. Loading help available.

FS: Drake MN-2000 Antenna Tuner FS by DFMA

Posted July 30th, 2025 by: [W4BOH](#)

Contact: infomet@embarqmail.com

Very nice classic tuner.

Inside like new, outside top shows slight wear.

Front panel excellent.

In Hillsborough, \$250

RARS Classifieds continued

FS: Powerware 5 UPS

Posted July 28th, 2025 by: [W4BOH](#)

Contact: infomet@embarqmail.com

24VDC in, 115VAC, 500w out.

Takes two 9AH batteries but I run mine on external batteries.

Pickup in Hillsborough, \$10.

FT-102, FC-102, SP-102 and FV-102 for sale

Posted July 27th, 2025 by: [AJ4M](#)

Contact: jim.shelby@att.net

I have the following equipment up for sale:

Yaesu FT-102: The relays were replaced a few years back (Common issue with the FT-102). The receiver is good. One issue is pressing the RF ATT button does nothing. It is stuck in no attenuation mode. (Although RF can still be attenuated with the RF knob). One meter lamp needs replacement as well as one VFO lamp. The transmitter works but has a low power output (I.e., 20-30 watts depending on the band). Both receive and transmit audio works. Unit is cosmetically I would call particularly good. Minor scratches on the case but no broken knobs, etc.

FV-102:VFO for the FT-102. Cosmetically I would say exceptionally good to almost mint. The VFO has no issues and works perfectly.

SP-102: Speaker/phone patch for the FT-102. Cosmetically again I would say particularly good. Speaker works as well as the phone patch . (although Phone Patches arn't used much if at all anymore. Butg the speakler matches the radio)

FC-102: Manual antenna turner with the external remote antenna switch for the FT-102. This one has a dccouple of issues. The relay for antenna is bad. I'm confident it may have gotten lightening at one time. All fo the other antenna connections work. However, the watt and SWR meters do not work, the push-button antenna switch nor the lights in the meters.

I have all of the manuals for the above. I am asking \$300 for everything. (The VFO gets that or more on eBay itself) Local pickup and CASH ONLY please.

73 my frineds and thanks for looking!

RARS Classifieds continued

VMAXTANKS 8-stage 12V charger

Posted July 23rd, 2025 by: [K4RGN](#)

Contact: k4rgn@outlook.com

VMAXTANKS BC8S1215A 12V 8-stage smart charger (including desulfation) and maintainer. Bought new in 2020 and seldom used. Works with all forms of lead-acid batteries (wet, maintenance-free, calcium, AGM, and GEL) but no form of lithium.

https://www.vmaxtanks.com/BC8S1215A-12V-15A-8-Stage-Smart-Battery-Charger-Maintainer-_p_218.html

Original box and users manual. Offered at \$50. New ones are priced at \$100. Local buyers only.

FS: Icom PW-1

Posted July 16th, 2025 by: [W4BOH](#)

Contact: infomet@embarqmail.com

Yes, the super expensive solid state Icom amp, with integrated power supply.

Yes, it's heavy.

Yes, it's a bargain, under half price.

Lightly used by SK.

It's in Hillsborough.

I'll help you load it.

\$1995.

73, Wilson

Kenwood TH D-74

Posted July 16th, 2025 by: [AC1BX](#)

Contact: ken@galers.com

Perfect like new condition, it's never left the house. Bought in 2019 but I'm too far in the woods for it to be much use. I'm changing to a base station with a mounted antenna now that I have more time for radio.

Comes with a Rapid Charger and a Diamond SRH320A antenna. Also, the original antenna if I can find it.

\$400?

Regards, Ken, AC1BX

ken@galers.com

<https://www.rars.org>

RARS Classifieds continued

Baofeng 1701 DMR HT

Posted July 15th, 2025 by: [W4EIP](#)

Contact: fw1guy@hotmail.com

[Digital & Analog Compatible] - FCC Part90 Certification ID: 2AJGM-DM1701. The DM-1701 is compatible with digital and analog modes, including dual band VHF/UHF coverage of 136-174MHz and 400-480MHz. It has up to 3,000 Channels, 10,000 Digital Talk Groups and 120,000 Contacts.

[Multi-function & 1.77" color TFT Display] - The DM-1701 offers to scan analog and digital channels, manual programming, DTMF, VFO, SMS, emergency alarm, digital monitor mode, CTCSS and CDCSS, color codes and DMR encryption. There are 5 customized keys for faster access to those features.

Updated with OpenGD77 firmware which makes DMR much easier to use with a hotspot or a repeater.

There are 4 DMR repeaters that I know of in the Raleigh area:

442.0250 +5.0 MHz CC 1 KI4AUN Raleigh NC DMR

442.2125 +5.0 MHz CC 0 W4RNC Raleigh NC DMR NCPRN Testing

443.3375 +5.0 MHz CC 1 W3WDD Raleigh NC DMR NCPRN Network

441.3625 +5.0 MHz CC 1 W1CKD Cary NC DMR

440.5250 +5.0 MHz CC 3 W4RNC RTP NC DMR

443.2000 +5.0 MHz CC 1 AA4RV WF WCPE Tower DMR

Includes charger base and cable, programming cable and programming software and original box. \$40.

Dave Daniels W4EIP

Alpha-Delta DX-CC 80-10 meter dipole

Posted July 9th, 2025 by: KR4LH

Contact: [KR4LH](#)

voodoo101der71@gmail.com

This antenna is currently down due to recent storm; I use a homemade ladder line dipole more so it is surplus to my needs. I have the installation sheet for tweaking if you need to. I paid probably \$200-ish with tax and shipping, but will sell for \$100 OBO. KR4LH Text me at 830-515-9762 or email me. Payment arrangements can be made if interested.

RARS Classifieds continued

Foxes for Sale

Posted July 9th, 2025 by: [W4BOH](#)

Contact: infomet@embarqmail.com

No, not the foxes you see at the mall...

These are radio foxes, in kit form, just what you need to run a foxhunt for your kids and friends.

They run a few mW, on 146 MHz and will run a couple days on a 9V battery.

They use leaded components on a nice PC board, for easy assembly and they are small enough to be packaged in a pill bottle.

You can use your whip or rubber duckie antenna.

Kits are on hand in Hillsborough, for \$20, or can be mailed to you for \$25.

PS: They don't bite.

Yaesu FT-991 Transceiver

Posted July 3rd, 2025 by: [W2WNC](#)

Contact: w2wnc.chuck@gmail.com

Excellent condition set.

Includes Diamond X-300A.

Includes 12v battery setup.

\$800.00

Local pickup at Google maps: W7HH+VHM

Yaesu FP-1030A

Posted July 3rd, 2025 by: [W2WNC](#)

Contact: w2wnc.chuck@gmail.com

Excellent condition FP1030A

\$200.00

Local pickup, cash only

See Google maps: W7HH+VHM

Minutes, Board of Directors Meeting

Raleigh Amateur Radio Society

July 1, 2025

1. President Fin Gold NC4FG called the meeting to order at 7:01 pm. There were no visitors. Board members present were: Fin Gold NC4FG, Julie Royster KT4JR, Nancy Torborg KB2TNR, Chuck Till K4RGN, Alan Pitegoff AB4OZ, Richard Hall KR4LH, Tony O'Connor K1OC, Chuck Littlewood K4HF, Greg Seamster KE4PAX, Ken Latchum AD4GX, Tadd Torborg KA2DEW, Denny Oestreich KO4IBL, and Jon Suen KG6K. President Gold asked Secretary Julie Royster for a quorum call; she affirmed that a quorum was achieved.
2. President Gold asked for a motion to approve the minutes of the June 2025 BOD meeting. Richard Hall so moved, and the motion was seconded and passed.
3. Old Business
Donations update - Fin Gold NC4FG President Gold reported that the club has sold some estate donation equipment, generating about \$1000 in income. He initiated a discussion about donations to be used as loaners, including whether RARS should establish a new position for an equipment manager to keep track of it and make the loans. We could potentially keep equipment at the Red Cross facility or at the home of an equipment manager. If Brantley West were willing to maintain the latest 2 donations, we could delay establishing a new equipment manager.
4. New Business
Nominating Committee Procedures Update - Tony O'Connor, K1OC A new proposed [Nominating Committee Procedures](#) document has been posted detailing needed updates. RARS needs to tap more people to participate in different ways. President Gold asked for a motion to approve the new nominating procedures document. The motion was made, seconded, and approved.
5. Officers' Reports
 - a. Vice-President's Report – Chuck Till K4RGN
Chuck still needs speakers for 3 months later this year.
 - b. Treasurer's Report – Greg Seamster KE4PAX
304 members have renewed so far but we have not asked for renewals yet. He will ask for renewals in July. There are 573 voting members for next week's meeting. Greg has asked for

RARS Board of Directors Meeting minutes continued

certificates of insurance but not all have been received yet. We have liability insurance. In the past RARS has had equipment insurance at repeater sites but it was thought not to be worth the cost. Jeremy asked Greg to let him review the language of automobile coverage.

c. Secretary's Report – Julie Royster KT4JR

The minutes are up to date. Julie will not be present at the July club meeting so someone else will need to do the quorum call. Julie requested that AI meeting summaries be activated on the RARS zoom account to make preparation of minutes for board meetings and club meetings easier.

6. Committee Reports:

a. Net Manager Julie Royster, KT4JR

Nets are proceeding as usual.

b. Public Service Director Jeremy Lindsley, K2HJX

The public service season is going well.

c. Education Director Denny Oestreich, KO4IBL

A technician license training class is scheduled for September. Tom will put an announcement into the Exciter to advertise. Some new teachers will be participating. Denny needs access to the Red Cross building. We could use a backup teacher in case of illness.

d. FM Repeater Chair Jon Suen, KG6K

There was an inquiry regarding whether someone can speak in Esperanto on the RARS repeaters. Following a discussion the board said NO. We have a coupon for discount on batteries. Jon got a repeater for cheap on eBay which RARS could buy if desired. It is possible that batteries going bad may be causing inaccurate announcements re RARS dinner date, etc. We need to ensure that autopatch announcements are OFF. The repeater committee needs to handle this.

e. Club License Trustees Tom Lewis, N4TL

There are no updates and no word from Brantley.

f. Exciter Editor Tom Lewis, N4TL

Work on the next issue is in progress.

g. Field Day Chair Marty Young, W4MY

An article has been written for the Exciter with video walk-around. This year's Field Day was a great experience. Red Cross representatives attended.

RARS Board of Directors Meeting minutes continued

- h. RARS VE Coordinators Richard Hall, KR4LH

The next license testing will be held at the Cary swapfest.

- i. At large member: Tadd Torborg KA2DEW

Tadd discussed ideas for future Gatherings and new ham meetings. This led to a general discussion of the popularity of the Gatherings, with 49 people attending the most recent one. We could potentially use the room where license testing is done to set up a radio and use it at a loud enough volume for numerous people to hear. Chuck Till raised the idea of having fewer in-person general club meetings if members prefer the hands-on Gatherings to program presentations. Tadd and Fin voiced support for topical meetings (not necessarily at the church) where people could bring their own equipment and all learn how to do a certain activity with their own equipment. Chuck Till stated that there are numerous issues to consider regarding types of meetings, frequency of meetings, etc. as well as the specific topics that are of interest to newer hams, younger hams, and more experienced hams. Fin agreed to work up a document covering these ideas for further discussion. Richard Hall and Julie Royster questioned whether club member approval of minutes is actually needed, but the bylaws do require it. Tony O'Connor suggested planning a discussion in August these issues plus potential bylaws changes. Fin will initiate 2 Discord topic threads regarding these issues.

- j. RARS Webmaster Tony O'Connor, K1OC There have been no outages, and the website is OK.

7. There being no additional reports or comments, President Gold asked for a motion to adjourn. Chuck Till so moved, and the motion was seconded and approved. The meeting was adjourned at 8:07 pm.

Respectfully submitted,

Julie Royster, KT4JR, RARS Secretary

RARS General Membership Meeting minutes

July 8, 2025, 7:30 PM

1. President Fin Gold NC4FG called the meeting to order, welcomed participants, and reminded those on Zoom of tips. He stated that the nomination process for club leadership positions is beginning soon, and members who are interested in serving in some capacity are encouraged to contact the nominating committee. The RARS fiscal year ended in June, so it is time to renew our dues, as detailed in an email sent out today. There were no new members or members with newly upgraded licenses present. He asked for anyone present who had not already signed the attendance log to do so to enable a quorum count.
2. Vice President's Report or announcements – Chuck Till, K4RGN The speaker for August will discuss the NASA deep space network. Speaker slots for September and October are open, and members are encouraged to suggest topics for demonstrations or discussions, and to volunteer to lead a demonstration.
3. Secretary's Report or announcements – Julie Royster, KT4JR (absent) President Gold stated that the minutes are up to date. The sum of in-person plus zoom participants did achieve a quorum, so he asked for a motion to approve the June meeting minutes. The motion was made, seconded, and approved.
4. Treasurer's Report or announcements – Greg Seamster, KE4PAX Greg stated there were 587 members at the end of the fiscal year, and that 337 members have already renewed.
5. Specific Announcements or Reports from Directors
 - a. Announcements by Alan Pitegoff, AB4OZ The Salisbury Firecracker hamfest will be Saturday July 12. The RARS quarterly 10m net will be held after the Tech & Trader net on July 12. The Cary swapfest will be held on July 19 at Ritter Park.

RARS General Membership Meeting minutes continued

- b. President Gold announced that the next Board Meeting will be at 7 PM Tuesday, August 5, 2025 on Zoom. He reminded participants of the upcoming RARS dinner on the third Tuesday and the upcoming Gathering on the fourth Tuesday.
- 6. Door Prize Drawing: Vice President Chuck Till supervised the drawing, and the following winners chose their prizes: Dale Jones, WA4JCK; Devin Hedge, KN4FVH; Tom Karches, KQ4FKQ.
- 7. VP Chuck Till introduced the Program: The Future of Lithium Batteries, presented by Associate Professor Veronica Augustyn of the NCSU Department of Materials Science and Engineering.
- 8. Following the excellent program, President Gold thanked Dr. Augustyn. He then asked for a motion to adjourn. The motion was made, seconded, and approved. The meeting was adjourned at 8:12 pm.

Respectfully submitted,

Julie Royster, KT4JR, RARS Secretary

A Three Element 20 Meter Vertical Beam

That costs less than \$300, Can be carried in one hand in a small duffle bag, is less than 3 feet long when taken down, can be installed and taken down in less than 10 minutes by one person, does not require guy ropes, can handle legal limit power, and offers more than 5 dB of gain.

By: Carl Davis, W8WZ



John K4EB, Brantley K4CBW and I recently started a small contesting club we call the Pinecone Amateur Radio Club (N4BCJ). We enjoy operating together in contests and one of our favorite things to do is portable multi-multi operations. For instance, in the most recent Virginia QSO Party, we rented a cabin in the Old Dominion State and set up 2 Yaesu FTDX10's and wire antennas. One station ran SSB and the other CW. We came in second in our category. Inspired by that, we did a similar thing from a cabin in North Carolina last Field Day. We have a lot of fun. When we were at the Dayton Hamvention this May we were captivated by the "portable" hex beam antenna systems and spent a good while drooling over them and thinking about how nice it would be to have a beam in our modest portable contest setups. But towers, guy wires, masts, all seemed like too much work and cost to me. But John and Brantley both reminded me of how much FUN it would be. That got me to thinking about how to build a portable, inexpensive, easy to transport, install and

A Three Element 20 Meter Vertical Beam, continued

take down, beam. Hmm.

That evening we went out to do a Parks On The Air (POTA) activation and we used my favorite POTA antenna. I use a 17 foot long vertical telescopic whip that mounts into a tent stake style mount. The coax connects to the mount and so do 4 radials that slide onto the tent stake using a spade connector. I use this antenna frequently during my many POTA operations. It goes up and down in less than 5 minutes and requires no trees or ropes or guy lines. I got mine on e-bay and paid less than \$50 for the entire antenna system. As I looked at that antenna I had the idea of adding a director and reflector to it and making it into a 3 element beam. That should work! I thought. Because I like this antenna so much, I bought several spares, that way if one breaks, I am not off the air. Having 3 of these antennas also allowed me to make a 3 element beam by using one for the Director, one for the Driven Element and one for the Reflector.

I had never seen another ham do this, but I knew the idea couldn't be new, so a bit of internet searching was in order. I found a 1971 QST article by Jerry Sevic W2FMI entitled "The W2FMI 20-Meter Vertical Beam". I highly suggest that you read that article, which can be viewed on the ARRL webpage in the Periodicals Archive section. In this article Jerry describes doing exactly what I had envisioned. He didn't use telescopic whips, he used wires and built supports to hang them. However, electrically the antenna is the same as the one I envisioned. He measured 5.2 dB gain over a $\frac{1}{4}$ wave vertical with his 3 element beam. He also discovered he had to use a 4:1 transformer at the feed point to match the impedance as the parasitic elements impacted feed point impedance. Armed with that knowledge I set out to see what I could do.

Following Jerry's instructions, which are the simple math for yagi antenna element size and spacing, I made the Driven element 16 feet tall as I usually do. 12.5 feet to the West of that I placed the Director which I extended to 15 feet 8 inches. 12.5 feet East of the Driven Element I placed the Reflector which I extended to 17 feet 7 inches. The telescopic whip I was using is only 17 feet tall, so to get the extra 7 inches, I took a length of number 12 solid copper wire, soldered an alligator clip on one end, bent it at 90 degrees after the solder connection and alligator clipped that wire to the top of the telescopic whip at a location that would make the total antenna length 17 feet 7 inches.

I then measured SWR. I had 2:1 on 20 meters. I added the 4:1

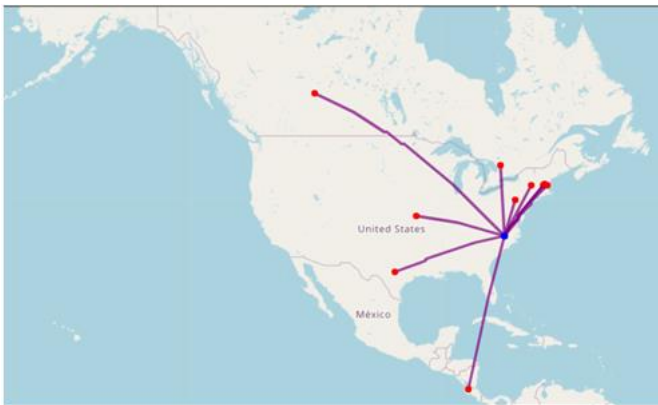
A Three Element 20 Meter Vertical Beam, continued

transformer mentioned in the article and the SWR was worse. I went out to adjust the element length. Then I decided to try matching SWR without the transformer. By simply shortening the driven element length several inches I was able to match the impedance and get a 1:1 SWR without the need for a transformer in the feedline. Having a modern antenna analyzer made this task much easier than it was in 1971 for W2FMI.

The next test was to see how the radiation pattern looked. Fortunately, I have Reverse Beacon Network whereas W2FMI had to rely on making lots of contacts and getting signal reports back in 1971. I simply called CQ a few times on 20 meter CW and looked at RBN.

The difference the beam made was drastic.

Here is the antenna pattern with just the $\frac{1}{4}$ wave vertical antenna. As you can see, it is very omni directional.



There are no RBN hits in the Atlantic ocean so East doesn't show up much in this, but we can assume there is signal there, just no one to hear it. If we were to draw a line connecting the dots of each hit on this map it would make a circle shape (again allowing that there weren't stations in the Atlantic). This is what I would expect from a quarter wave vertical antenna.

Now look at the RBN hits when we used the beam pointing West from Raleigh, NC

A Three Element 20 Meter Vertical Beam, continued



There were two hits off the side of the beam in New England, all the other hits were straight West of us. Stations in other directions that heard my signal before now did not hear it as they were not in the beam's path.

What does this show? Well, it shows you can make a relatively inexpensive, very portable, easy to put up, take down, and transport beam antenna that works fairly well at being a beam!

If you are going to build this and use it many times, here are a few hints:

1. Get several colors of kite string. Use a different color string for each of the following items.
 - A. Cut two lengths of kite string to 12 feet 6 inches. Label them with masking tape "Element Spacing"
 - B. Cut one length of kite string 17'7" and label it with masking tape "Reflector" and put an alligator clip on one end.
 - C. Cut one length of kite string 16 feet and label it with masking tape "Driven Element" and put an alligator clip on one end
 - D. Cut one length of kite string 15'6" and label it with masking tape "Director" and put an alligator clip on it.

Now when you go to the field to install this antenna. Use the 12 and a half foot strings you cut in item A to measure out the spacing between the elements. I suggest tying the string around the base of each element. That way if you want to "Rotate" the beam, you leave the driven element in place, move the director on that string, keeping the 12.5 feet spacing, then move the reflector on its string, keeping the 12.5 feet spacing until it is in the same plane as the director. Doing that will rotate the beam's direction while keeping the spacing.

When you go to push up the elements, alligator clip the correctly labeled string to the top of your antenna, and slide the antenna up until

A Three Element 20 Meter Vertical Beam, continued

your string shows you have it at the correct length. This will prevent you having to measure each element with a tape measure each time. Keep these strings from getting tangled by storing them on a wire winder.

If you have an antenna analyzer you can use that to make final adjustments to the length of your driven element for lowest SWR. Or, you can use your radio's built in SWR meter, or just use the radio's built in antenna tuner to match the system if your radio has one. Or use an external tuner if needed.

This will get you a beam on the air quickly. With any vertical antenna, you will need good ground radials if you are in an area without good soil conductivity. The more the better.

Of course, you don't always WANT a beam. When I am activating a park for POTA, I want to make as many contacts as possible in all directions, so I like the way a vertical antenna's omni directional pattern works. However, if we are in a contest and trying to work a specific part of the country, a beam is nice. Also, it can keep RF away from another antenna, thus reducing inter-station RFI in a multi-multi setting. So beams have their place, but so do less directional antennas. It is all about using the right tool for the job and it is nice to know that it is "easy" to get a tool that is a 3 element beam that doesn't break the bank, can be transported easily, installed and taken down quickly, and be a fun way to play radio in a park or other portable setting (or even at your home).

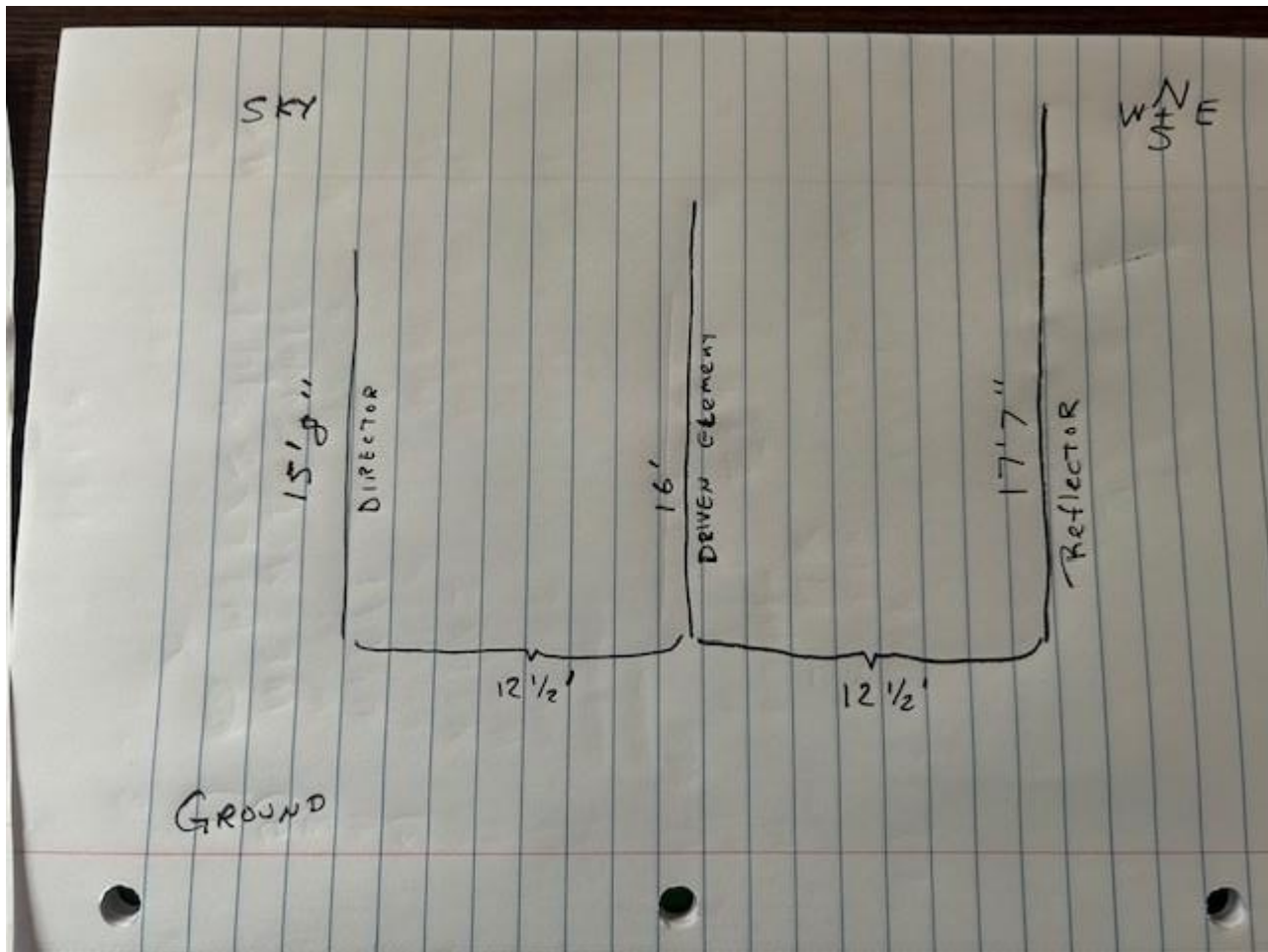
A Three Element 20 Meter Vertical Beam, continued

Picture of the Beam in the yard:



A Three Element 20 Meter Vertical Beam, continued

Schematic Drawing of Antenna:



A Three Element 20 Meter Vertical Beam, continued

How I added length to the Reflector:



A Three Element 20 Meter Vertical Beam, continued

How the Radials Connect:



A Three Element 20 Meter Vertical Beam, continued

eBay Links to the antennas and parts used:

1. Antenna Carry Bag: \$21
<https://www.ebay.com/itm/285603579968>
2. Tent stake ground mount SO-239 to M-10 \$38.00. [Hyperlink](#)
3. Telescopic Vertical Antenna : \$20 [Hyperlink](#)
4. Ground Radial Kit: \$40 (or make your own) [Hyperlink](#)

